The opinion in support of the decision being entered today was
not written for publication and is not binding precedent of the
Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

MAILED

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Ex parte RICHARD J. PRYOR
AND NIPA BASU

SEP 2 7 2002

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

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Appeal No. 2001-0022
Application 08/791,724

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ON BRIEF

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Before THOMAS, JERRY SMITH and BARRETT, Administrative Patent
Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

        This is a decision on the appeal under 35 U.S.C. § 134

from the examiner's rejection of claims 1-8 and 10-17. Claim 9

has been cancelled. Pending claims 18 and 19 stand withdrawn

from consideration by the examiner as being directed to a non-

elected invention.

        The invention pertains to a method and apparatus for

predicting changes in an economy using a microsimulation model.

The model outputs a representation of the change in the economy

based on initial and new values of economic variables.

Representative claim 1 is reproduced as follows:

1. A method of predicting a change in an economy, where
the economy comprises a plurality of decision makers and economic
variables having initial values, said method comprising the steps
of:

a) representing the decision makers by a plurality of
agents, where each agent comprises internal state and decision
rules defining the agent's actions responsive to input messages
and the internal state;

b) initializing the internal state of each agent;

c) processing each agent, where processing an agent
comprises the steps of:

i) receiving an input message destined for the agent,
if one exists;

ii) generating output messages and changes to the
agent's internal state based on the input message, the agent's
internal state, and the agent's decision rules, where an output
message comprises information identifying an indicated
destination agent;

iii) repeating steps i) and ii) until there are no more
input messages destined for the agent;

d) routing output messages from each agent to indicated
destination agents;

e) determining new values for the economic variables from
the agents' internal states and the output messages;

f) repeating steps c, d, and e until a terminal condition
is reached; and

g) outputting a representation of the change in the

g) outputting a representation of the change in the economy based on the initial values of the economic variables and the new values of the economic variables.

The examiner relies on no references.

Claims 1-8 and 10-17 stand rejected under 35 U.S.C. § 101 as being directed to nonstatutory subject matter.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the reasons relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that claims 1, 3, 4, 6-8, and 11-15 are not directed to statutory subject matter within the meaning of 35 U.S.C. § 101. We reach the opposite conclusion with respect to claims 2, 5, 10, 16 and 17. Accordingly, we affirm-in-part.

The rejection asserts that the invention of claim 1 does not recite a practical application in the technological arts. With respect to claim 2 which recites that the invention is practiced on a computer, the examiner acknowledges that that invention is within the technological arts, but the examiner finds that this invention still does not recite a practical application. The examiner takes a similar position with respect to each of the other claims on appeal. In other words, the examiner's position is that the claims are not limited to a practical application since the output, or result, is not used in any practical manner or application [answer, pages 2-4]. Appellants argue that a method of predicting change in an economy, where the economy comprises a plurality of decision makers and where the economic variables have initial values is patentable under 35 U.S.C. § 101 as having practical utility [brief, page 9]. Appellants continue the argument in several sections of the briefs by stating that predicting a change in an economy is a practical application within the technological arts. Appellants note that a practical application is achieved if the invention produces a useful, concrete and tangible result

referring to the decision in <u>State Street Bank & Trust Co. v.</u>
<u>Signature Financial Group, Inc.</u>, 149 F.3d 1368, 1373, 47 USPQ2d
1596, 1601 (Fed. Cir. 1998). Appellants further argue that an
economy and a model of an economy are specific technological
things, and not abstract ideas. With respect to those claims
which recite implementation of the invention on a computer,
appellants argue that the computer implementation provides an
additional basis for finding a practical application of the
invention.

The examiner responds that the claims are not limited to
a practical application. Specifically, the examiner notes that
the method and apparatus can be used to model any system and that
modeling a hypothetical system does not relate to a practical
application having a useful, concrete and tangible result. With
respect to the claims which recite a computer, the examiner notes
that appellants did not invent any specific machine since a
general purpose computer can be used. The examiner asserts that
a model, even if implemented on a computer, does not relate to a
practical application [answer, pages 4-11].

Appellants respond that claims 2, 5, 10 and 16 are limited to practice on a specific type of computer, and that the control of a specific type of computer is a practical application in the technological arts. Appellants also reiterate their position that the prediction of an economy's behavior is a practical application [reply brief].

The Federal Circuit addressed this issue in the above-noted State Street Bank decision. The court noted that the Supreme Court has identified three categories of subject matter that are unpatentable, namely, laws of nature, natural phenomena and abstract ideas. We agree with appellants that the examiner's rejection in this case is based on the abstract idea category. Thus, we will consider this rejection as a finding that the claimed invention is directed to an unpatentable abstract idea. The court noted in that decision that unpatentable abstract ideas are identifiable by showing that they are merely abstract ideas constituting disembodied concepts or truths that are not "useful." From a practical standpoint, this means that to be patentable an otherwise "abstract idea" must be applied in a "useful" way.

Although the discussion of the court may seem simple to apply, the court has offered no guidance as to how to determine at what point an otherwise unpatentable abstract idea is applied in a useful way. The invention relates to a method for predicting a change in an economy. As noted in claim 1, an economy is broadly defined as a plurality of decision makers and economic variables having initial values. This could describe almost anything. Appellants note that the invention uses a microsimulation model [brief, page 2]. Appellants additionally note that the economy can be a monetary economy or a non-monetary economy such as a military confrontation. The claimed agents are described as being almost anything. Thus, because the model could be used to simulate events in the real world, appellants are of the view that the method or model for performing the simulation is a practical application of the method or model.

In our view, the claims on appeal which do not recite implementation on a computer and which are not directed to the apparatus of the invention do not meet the threshold for applying an abstract idea in a useful way. The microsimulation model of the disclosed invention, in its most basic form, is nothing more

than an abstract idea. Claim 1 and the other claims which do not
recite a computer simply recite what the model or the abstract
idea achieves and how it is achieved. It appears that the model
can be used on essentially any activity and the decision makers
and variables can also be anything. These claims do not rely on
any agent of technology to participate in the claimed method.
These claims are broad enough to read on a theoretical abstract
idea in its most basic form. Thus, we find that these claims can
be read to cover nothing more than the abstract idea itself
constituting nothing more than the disembodied concept. Since we
find that these claims cover the abstract idea involving a
disembodied concept, we agree with the examiner that these claims
do not apply the abstract idea in a useful way within the meaning
of 35 U.S.C. § 101.

We reach the opposite conclusion with respect to method
claims 2, 5 and 10 and apparatus claims 16 and 17. Method claims
2, 5 and 10 all recite that a multiprocessor is used, and the
steps of these claims recite how each processor of the
multiprocessor computer is assigned and/or used. We agree with
appellants that the recitation of specific steps being performed

on specific processors of a multiprocessing system constitutes a practical application of the invention. In other words, we find that the particular method recited in these claims requires a specific use of a multiprocessing system which is a practical application of the underlying abstract idea.
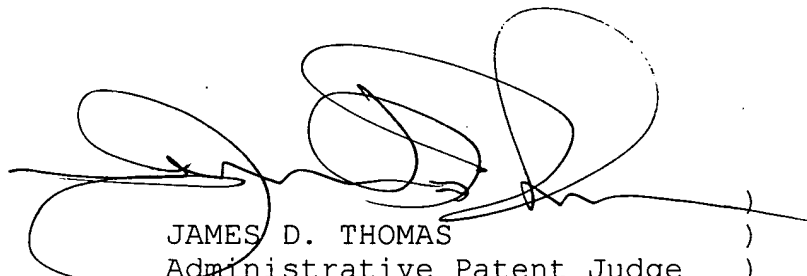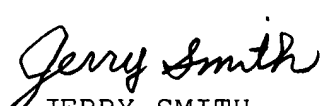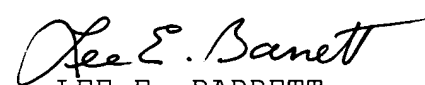
Apparatus claims 16 and 17 recite a plurality of processors of a multiprocessor computer and a plurality of means for controlling the operation of the plurality of processors. The computer apparatus being claimed in claims 16 and 17 more than an abstract idea. The computer of these claims is a physical component and the claimed means relate to software and/or hardware within the computer which enables the claimed functions to be achieved. We find that the multiprocessor computer of these claims constitutes a practical application of the underlying abstract idea and is, therefore, patentable under 35 U.S.C. § 101.

In summary, we have sustained the examiner's rejection with respect to claims 1, 3, 4, 6-8 and 11-15, but we have not sustained the rejection with respect to claims 2, 5, 10, 16 and 17. Therefore, the decision of the examiner rejecting claims 1-8 and 10-17 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

<u>AFFIRMED-IN-PART</u>

JAMES D. THOMAS
Administrative Patent Judge   )
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JERRY SMITH   ) BOARD OF PATENT
Administrative Patent Judge   )
)   APPEALS AND
)
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